



U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 2

May 17, 2018

BY ELECTRONIC MAIL

Robert Law, Ph.D.
de maximis, inc.
186 Center Street, Suite 290
Clinton, New Jersey 08809

Re: Re: Lower Passaic River Study Area Draft Remedial Investigation Report –
Administrative Settlement Agreement and Order on Consent for Remedial
Investigation/Feasibility Study (Agreement) CERCLA Docket No. 02-2007-2009

Dear Dr. Law:

The U.S. Environmental Protection Agency (EPA) has reviewed the Cooperating Parties Group's (CPG) Draft Remedial Investigation (RI) Report Appendices G, H and I dated January/February 2018 prepared by Anchor QEA. In accordance with Section X, Paragraph 44(d) of the Agreement, EPA has enclosed an evaluation of CPG's revised RI Report with this letter.

Please proceed with revisions to the draft RI Report consistent with the enclosed comment evaluations. If there are any questions or clarifications needed on EPA's enclosed comment evaluations, please contact me to discuss.

Sincerely,

A handwritten signature in dark ink, appearing to read "Diane Salkie", is positioned above the typed name.

Diane Salkie, Remedial Project Manager
Lower Passaic River Study Area RI/FS
Enclosure

Cc: Zizila, F. (EPA)
Sivak, M. (EPA)
Hyatt, B. (CPG)
Otto, W. (CPG)

EPA COMMENTS

No.	Section	General or Specific	Page No.	EPA Comment
1	Appendix G	General	N/A	Appendix G provides detailed equations describing a three-phase partitioning model (Section 3) and the kinetics of sorption (Section 5). Additional detail should be included regarding the need for a three-phase partitioning model and consideration of sorption kinetics in the contaminant fate and transport (CFT) model. In addition, there should be a discussion of the uncertainty associated with the three-phase partitioning model and sorption kinetics.
2	Appendix H	General	N/A	The tables are numbered 1 and 2a through 2f but there are references in the text to Table 5-1, Tables 5-2a through 5-2f, and Table 1a. Please correct the table numbering and references to be consistent.
3	Appendix H	General	N/A	Please add some discussion of the relative influence of non-detects on the means presented in Figure 1-1 and Figure 1-2. In particular, 2,3,7,8-TCDD results from both T014 and T000 stations have many more non-detects compared to the other stations and the March 2012 and December 2012 events have many more non-detects compared to the other events.
4	Appendix G, Section 2, first paragraph, first sentence	Specific	2	Provide a brief description of why large volumes are needed (i.e., to achieve the necessary reporting limits).
5	Appendix G, Section 2, bullet 1	Specific	2	The description does not include the vortex solids separator. In addition, the report should clarify why the glass wool filter was added and discuss the nature of the material captured in the glass wool filter. For example, was the filter added because the particles are neutrally buoyant, or because of the size and quantity of the algal-like and other particles (including plant matter)? Did it capture material such as leaves and other organic matter or was it comprised solely of larger suspended sediment particles?
6	Appendix G, Section 2, second paragraph, first sentence	Specific	2	Please describe how the flow rate was determined considering sorption time or point to the location where the calculation was documented during the sampling design.
7	Appendix G, Section 2, second paragraph, forth sentence	Specific	2	Please clarify if the percentages of the spiked compounds sorbed to the first PUF (99% and 98%) should be percentages of the <i>recovered</i> spiked compounds.

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8	Appendix G, Section 2, last paragraph	Specific	2	The report notes that detectable mass of PCDD/PCDF and PCB was detected in the post PUF filtrate sample and concluded that these detections were likely an artifact because the detected concentrations were similar to method blank samples. Additional information and discussion should be provided to support this conclusion. This should include presentation of filtrate and method blank detections, the two in-line PUF sample results and any other lines of evidence.
9	Appendix G, Section 2, first full paragraph, fourth sentence	Specific	3	Please clarify how the samples were time weighted.
10	Appendix G, Equation 2	Specific	4	Please change the description “carbon-normalized contaminant concentration” to “carbon-normalized <i>particulate</i> contaminant concentration” (<i>emphasis added to identify change</i>) to distinguish from other locations in the RI where total concentration has been carbon normalized.
11	Appendix G, Section 3	Specific	5, first paragraph	The report states that K _{DOC} values are 0.2% to 4% of the K _{ow} values based on a study of streams and lakes in south-central Ontario. The report should discuss in greater detail the uncertainty associated with this estimate and include the use of a value of 8% from Burkhard, 2000 which is outside the cited range.
12	Appendix G, Section 3, Paragraph after Equation 7, third sentence	Specific	6	The statement “only the carbon (sorption sites) characterized by the fast desorption rate (time scale of a few days) could approach equilibrium” should be qualified by “over the time scales that particles are in suspension”
13	Appendix G, Section 4	Specific	7, first paragraph	The report states that <i>dissolved chemical mass</i> (C _{TD}) was defined as the sum of chemical mass captured in PUF1 and PUF2 divided by the volume of the sample. The report should be revised to note that C _{TD} is a concentration, not a mass, since it is divided by the sample volume.
14	Appendix G, Section 4	Specific	7, first paragraph	The report states that C _T was estimated as the sum of the particulate capture in the glass wool and the 0.7 µm filter divided by the sample volume. Additional discussion about the glass wool filter should be provided (See Comment #6).

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15	Appendix G, Section 4, second paragraph	Specific	7	There do not appear to be any non-detected SSC values, and they do not factor into the calculation. The references to SSC in this paragraph should be eliminated.
16	Appendix G, Section 4, third paragraph, first sentence	Specific	7	The station should be Northeast not Southeast. Please correct.
17	Appendix G, Section 4, fourth paragraph, third sentence	Specific	7	Please clarify the phrase "...and the high SSC may have contributed by the inclusion of a small amount of large size particles."
18	Appendix G, Section 4	Specific	8, last paragraph	The report states that algal carbon has 100% of its carbon mass in the equilibrium domain. Additional supporting documentation should be provided for this assumption.
19	Appendix G, Section 5.1, last sentence	Specific	11	Please clarify what fluxes the author is referring to.
20	Appendix G, Section 5.2, second paragraph, first sentence	Specific	11	If this statement is true then the f_E derived from the water column data under fluff dominated conditions cannot be used to set the f_E in the bed. Please clarify, as this is the approach used in the model.
21	Appendix G, Section 5.2, first full paragraph	Specific	13	Please present the individual values for the algal carbon ratio and f_E in a table similar to Tables 3 and 4 or expand Tables 3 and 4 to include those values.
22	Appendix H, Section 2.2, first paragraph, first sentence	Specific	3	Please change the reference from "top panel" to "second panel".

EPA COMMENTS

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23	Appendix H, Section 2.2, first paragraph, 3 rd sentence	Specific	3	The report states “the difference between mid-tide and slack tide is greatest for the RM 10.2, TTR1, and TTR2 stations, and one or more of these have statistically significant differences for all COPCs. RM 1.4 also has statistically significant differences for three of the <i>five</i> contaminants” (emphasis added in italics). Significant differences are: T102=4, TTR1=3, TTR2=6, T014=3 and T000=1. T014 is in the same category as TTR1, and there are six contaminants presented, please correct.
24	Appendix H, Section 2.2, first paragraph, 5 th sentence	Specific	3	The report states “the differences between mid-tide and slack tide are substantially reduced (most notably for LMW PAHs and total DDx). For 2,3,7,8-TCDD, none of the groupings have statistically different mean solids-normalized concentrations at mid-tide vs. slack tide (Figure 1-2a, second panel; note that the differences in the means at RM 10.2 are strongly influenced by a single unusually high value, Figure 2-1a, top panel).” For the TTR1 station, the difference between mid and slack tide increases when solids normalized and based on the legend, the two elevated concentrations seen on Figure 2-1a are for the TTR1 station not T012. Please revisit these conclusions and make the necessary corrections.
25	Appendix H, Section 2.3, first paragraph	Specific	4	Please clarify the description of the figures and the references to Figures 2-1 through 2-3. For example, only half of the data presented on Figures 2-1, 2-2, and 2-3 are presented on Figures 2-4, 2-5 and 2-6 respectively.
26	Appendix H, Section 2.4, first paragraph	Specific	5	Please clarify the description of the figures and the references back to Figures 2-1 through 2-6. For example, only half of the data presented on Figures 2-1, 2-2, and 2-3 are presented on Figures 2-7, 2-8 and 2-9 respectively, and none of the data presented on Figures 2-4 through 2-6 are presented on Figures 2-7 through 2-9.
27	Appendix H, Section 2.4, second paragraph, 3 rd sentence	Specific	5	The reference to “desorption effects” should be replaced with either “partitioning effects” or “sorption properties” as used at the end of Section 5. While normalizing the total chemical by total solids may be a reasonable approximation for the more hydrophobic chemicals discussed, this is less effective for the less hydrophobic chemicals (e.g. LMW PAH). The discussion throughout should recognize the influence of this assumption on the conclusions reached.
28	Appendix H, Section 2.4, second paragraph, 4 th sentence	Specific	5	Please correct the sentence “lower ebb tide TSS relative is expected below the salt”. It is not clear what the lower ebb tide TSS is relative to. Delete “relative” or clarify.

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29	Appendix H, Section 2. 4, second paragraph, last sentence	Specific	5	“e.g., Geyer 1993” Please include a reference section in this appendix.
30	Appendix H, Section 4 and 5	Specific	9-12	<ul style="list-style-type: none"> • The Section 4 figures note 15-minute Dundee Dam flows, but the routine sampling events were conducted over a couple of days and the high flow events were conducted over a week or two during rapidly changing flow periods. Please provide additional details for the flows used for the figures and regressions. • The figures presented in Section 5 suggest different chemical behavior for the two high flow events. The high flow events were sampled for the rising and falling limbs of the flood flow at Dundee Dam, not for the flood-slack-ebb-slack tide conditions used for the other surface water sampling events. In the Section 5 discussion, please consider the potential influence that sampling design may have had on those results. • In both Sections 4 and 5, please check to see if the use of measured tides (e.g. PVSC gage 01392650) would influence the conclusions reached using the predicted Point no Point tides.
31	Appendix I, Section 1.1, Bullet Item 3	Specific	2	The report states that after cores were evaluated according to criteria, professional judgment was used to determine whether to include or exclude the cores for the analysis. Table 2 presents the reasoning for including or excluding the cores. However, a number of cores that were evaluated using professional judgment are not presented in Table 5 rather than in Table 2 (e.g., G0000172, RM14.46). The text should be revised to reference both Table 2 and Table 5 and describe the basis for including the professional judgment reasoning in which table.
32	Appendix I, Section 1.3, Bullet Item 3	Specific	4	The professional judgment reasoning presented in Table 5 includes cores presented in Figure 2 in addition to Figures 6 and 7. As noted in Comment #31 above, the text should be revised to describe the basis for including the professional judgment reasoning in which table.

N/A – not applicable